



Alpha Magnetic Spectrometer
NASA / DOE

Alpha Magnetic Spectrometer Weekly Reports

October 1, 2004



National Aeronautics and
Space Administration

Upcoming Events:

- Meeting to discuss CITE Maintenance Costs and the AMS-02 Avionics Functional Interface Test (FIT) - TBD (due to Hurricane Jeanne) – KSC
- AMS General Technical Interchange Meeting (TIM) - October 18 - 22, 2004 – JSC
- Electronics TIM and Uninterruptible Power Supply (UPS) CDR - November 1-5, 2004 – Taiwan
- STA Vacuum Case Delivery (on dock at STADCO) - November 30, 2004
- Flight Vacuum Case Delivery (on dock at STADCO) - December 15, 2004
- Thermal Control System (TCS) Delta Critical Design Review (Δ CDR) - January, 2004 – JSC
- AMS General TIM - January 10 - 14, 2005 – KSC
- Tracker Thermal Control System (TTCS) PDR - January 2005, CDR - April 2005
- AMS-02 Phase II Safety Review - March 2005 - JSC

Upcoming Tests:

- AMS-02 Avionics Functional Interface Test (FIT) - January 2005 – KSC
- O-Ring Test Fixture (OTF) Vacuum Test - Suspended - J13
- Interface Plate Static Test - Date TBD - Location TBD
- Lower Joint Static Test - Date TBD - Location TBD
- STA Acoustic Test - Date TBD - ESTEC - Noordwijk, Netherlands (Schedule under review)
- STA Sine Sweep Test - Date TBD - INFN - Terni, Italy (Schedule under review)
- Full Assembly Modal & Static Tests - Date TBD - IABG - Munich, Germany



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Status:

- Members of the LMSO Alpha Magnetic Spectrometer (AMS) Engineering Team attended a Faro Laser Tracker demonstration in the JSC Building 10 Shop. Some of the advantages of this laser tracker over the current system are the following:
 - It can be operated by one individual. The current system requires two operators for timely measurements.
 - It can be linked with the portable Coordinate Measuring Machine (CMM/Faro Arm).
 - It has a significantly faster warm-up and calibration cycle.
 - The computer interface is more intuitive.

The AMS-02 project is planning to procure one of these systems for the build-up and inspection of the Assembly Fixture (AF), Unique Support Structure - 02 (USS-02), and Primary Support Stand (PSS).

- Data was received from STADCO on the out-of-tolerance flatness issue documented on a Non-Conformance Report (NCR) written against one Vacuum Case Structural Test Article (STA) Upper Support Ring. A stress analysis is in work to determine if the assembly stresses are acceptable, which would allow the ring to be used "as-is". An unacceptable result would mandate that the ring be reworked.
- AMS-02 structural engineers developed time history data for the Support Strap/Vacuum Case attachment locations based on the original Design Coupled Loads Analysis (DCLA) run. This data was then provided to CenitDesktop to support clearance analyses of the cryocooler and vapor-cooled shields.
- An AMS Configuration Control Board (CCB) Change Request (CR) was prepared and submitted for CCB approval of the revised AMS Summary Master Schedule and updated AMS Assembly Milestones. The CR, Master Schedule, and Assembly Milestones were sent to the mandatory evaluators for review with a requested completion date of October 15.
- Vacuum Case Milestones

<u>Contract Deliverable</u>	<u>Due Date</u>	<u>Status</u>
First Article Conical Flange Complete	July 2004	(Machining complete, metal finish in work)
Weld Fixture Complete	August 2004	(Currently in use for rolled ring weld tests)
STA Support Rings Complete	September 2004	(Machining complete, metal finish in work)
Weld Development Complete	September 2004	(Flat plate qualification test in work)
STA Conical Flanges Complete	September 2004	(Machining complete, metal finish in work)
Flight Support Rings Complete	October 2004	
First Article Weld Complete	October 2004	
Flight Conical Flanges Complete	October 2004	



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Shipping Fixture Complete	October 2004	(CDR complete)
STA Line Drill Operations Complete	October 2004	
STA Match Drill Procedure Complete	October 2004	
STA Weld Complete (for proof test @ STADCO)	November 2004	
STA Vacuum Case Delivery (on dock at STADCO)	November 30, 2004	
Flight Vacuum Case Delivery (on dock at STADCO)	December 15, 2004	